

IN THE CLAIMS

Please cancel Claims 33-36, 39, 56 and 57 without prejudice.

Please add Claims 58-60 as follows:

--58. A process for producing a fluoride crystal by means of an apparatus comprising a fluoride crystal growth furnace having a crucible for holding a fluoride material, a heating means for melting the fluoride material, a moving means for moving the crucible relatively to the heating means, and a plurality of detecting means for detecting a temperature of the fluoride material, the process comprising the steps of:

detecting with the plurality of detecting means, a temperature in the vicinity of a bottom center of the crucible and a temperature in the vicinity of a side of the crucible; and

controlling based on a result of the detecting, a temperature inside the fluoride crystal growth furnace such that a temperature at the center of solid-liquid interface of the fluoride material in the crucible is made lower than a temperature in the vicinity of the solid-liquid interface of the fluoride material in the crucible.

59. The process according to claim 58, which further comprises controlling the temperature inside the fluoride crystal growth furnace such that an isothermal face of the fluoride material is made convex on a liquid phase side.

60. The process according to claim 58, wherein the apparatus further